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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/492,146	01/27/2000	Takeshi Misawa	0378-0365P	9491

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Birch, Stewart, Kolasch & Birch, LLP
P.O. Box 747
Falls Church, VA 22040-0747

EXAMINER

VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 05/07/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/492,146

Applicant(s)

MISAWA, TAKESHI

Examiner

John M. Villecco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-11 and 13-17 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 13-17 is/are allowed.
6) ☒ Claim(s) 2-6 and 8-10 is/are rejected.
7) ☒ Claim(s) 7,8 and 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 January 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION II

1. Upon further consideration the examiner believes that applicant's amendment to claim 4, which incorporates indicated allowable subject matter, does not overcome the prior art. Because of this fact, this action is non-final. The examiner apologizes for the delay in prosecution.
2. Applicant's amendment has overcome the 112 rejection from the previous office action.

Claim Objections

3. Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 is considered substantively equivalent to the last limitation of claim 4, from which claim 8 depends.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (Japanese Publ. No. 10-136391) in view of Yokouchi et al. (U.S. Patent No. 6,628,328).

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6. Regarding *claim 4*, Yamada discloses an image sensor which includes a plurality of photosensitive cells (11-15) which are arranged two-dimensionally in an array. As shown in Figure 7 the cells are arranged obliquely from each other at positions shifted from each other by half of the pitch in both the horizontal and vertical directions. Additionally, Yamada discloses that the image sensor, which is inherently disposed in an image pickup section, includes a set of color filters for separating the incident light into red, green and blue components arranged in the column direction. In Figure 1, Yamada discloses an arrangement for reading out charge from the photosensitive devices (11-15). While not specifically disclosed, the arrangement of Figure 1 would inherently include a signal reading out section for transferring the signal charge from the photosensitive devices (33) to the transfer registers (39-42). The transfer registers (39-42) are interpreted to be the transfer devices.

Yamada, however, fails to specifically disclose the arrangement described in the claims for providing a whole-pixel readout mode and a thinning read out mode or that the pixel thinning takes place by outputting pixels from every other line. Yokouchi, on the other hand, discloses that it is well known in the art to provide a whole-pixel read out mode and a thinning reading mode for outputting pixels. More specifically, Yokouchi discloses the ability to select an AF or AE mode in which a reduced number of pixels are output. Inherently a mode signal would be input to the CPU (17) to designate the selected mode. Additionally, Yokouchi disclose a timing generator (15) which is controlled by the CPU (17) to generate the correct timings for reading out the selected pixels. In this case the CPU would act as the mode setting section and the control section, while the timing generator acts as the drive signal generation section. See column 7, line 5 to column 8, line 43. Furthermore, Yokouchi teaches that it is well known in

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the art that when performing pixel thinning it is common to read out the pixels of every other line. More specifically, Yokouchi discloses a pixel thinning mode in Figure 3, in which only the pixels of every other line are read out. Yokouchi discloses that the thinning reading mode is used so that operations which require a high processing speed can be carried out faster (col. 7, lines 46-55. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a full pixel read out mode and a thinned pixel read out mode so that high-processing speed operation can be carried out faster.

7. As for *claim 2*, Yamada discloses in Figure 7 that the filters are made up of the colors red, green, and blue.

8. With regard to *claim 3*, Yamada discloses in Figure 7 an alternate filter arrangement wherein each of the colors is aligned directly above or below a similar color. When using the teaching of Figure 1, it is obvious that each of the similar colors are output to the same column line. See column 9, lines 16-28.

9. Regarding *claim 5*, applicant makes no mention of the relationship between one unit and the supplying of drive signals in the claim language; therefore, the claim can be interpreted very broadly. For instance, the claim language includes eight transfer devices making one unit. Yamada discloses transfer devices (39-42). Since there is no relation to the number of pixels per transfer device or how the drive signals are supplied to the transfer device, Yamada is interpreted such that eight of the transfer devices are one unit. Additionally, the drive signals supplied to the transfer sections would be different between the all-pixel readout and the thinned pixel readout described by Yokouchi. Since Yokouchi discloses that since only one transfer pulse is output for the thinning mode, the two modes are different (col. 8, lines 20-25).

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10. As for *claim 6*, Yokouchi discloses a plurality of transfer devices per unit. Furthermore, the drive signal would only be supplied to the transfer gate of one of the signal reading out sections. Again, the claim limitation of setting the plurality of transfer devices as one unit is very broad.

11. With regard to *claim 8*, Yokouchi discloses a pixel thinning mode in Figure 3, in which only the pixels of every other line are read out.

12. Regarding *claim 9*, applicant makes no mention of the relationship between one unit and the supplying of drive signals in the claim language; therefore, the claim can be interpreted very broadly. For instance, the claim language includes eight transfer devices making one unit.

Yamada discloses transfer devices (39-42). Since there is no relation to the number of pixels per transfer device or how the drive signals are supplied to the transfer device, Yamada is interpreted such that eight of the transfer devices are one unit. Additionally, the drive signals supplied to the transfer sections would be different between the all-pixel readout and the thinned pixel readout described by Yokouchi. Since Yokouchi discloses that since only one transfer pulse it output for the thinning mode, the two modes are different (col. 8, lines 20-25).

Claim Rejections - 35 USC § 103

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (Japanese Publ. No. 10-136391) in view of Yokouchi et al. (U.S. Patent No. 6,628,328) and further in view of Toma (U.S. Patent No. 6,583,818).

14. Regarding *claim 10*, as mentioned above in the discussion of claim 9, the combination of Yamada and Yokouchi disclose all of the limitations of the parent claim. However, neither of

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the aforementioned references discloses that in the plurality eight transfer devices, the drive signal is supplied to only one signal reading out section. Toma, on the other hand, discloses a method of reading out pixels using an 8 phase control for the transfer devices. See column 9, lines 20-24. This allows for less pixels to be read out, thus facilitating a faster readout.

Therefore, it would have been obvious to one of ordinary skill in the art to claim readout pixels from one pixels in an eight phase drive so that less charges are read out, thus facilitating a faster readout.

Allowable Subject Matter

15. Claims 7 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 7 and 11, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest a first vertical drive signal for transferring charges by two lines in a column direction, and a second vertical drive signal for transferring the charges by four lines after the first vertical drive signal is applied, and a first horizontal drive signal for setting a transfer distance in a row direction to two columns.

16. Claims 13-17 are allowed.

17. Regarding claim 14, the primary reason for allowance is that the prior art fails to teach or reasonably suggest generating a column transfer timing signal for setting a transfer distance to two lines for transferring the signal charges in a column direction after the field shift signal. In

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this case, as disclosed in the specification on page 12, lines 19-23, each line is supplied with four-phase drive signals to move the charge one line. Therefore, according to the claim language the charge is moved eight transfer devices according to the column transfer signal.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
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or faxed to:

(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label "PROPOSED" or "DRAFT")

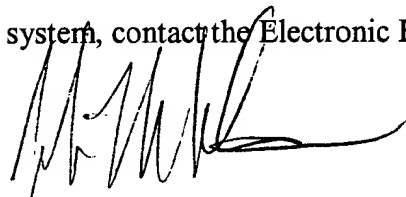
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John M. Villecco
April 22, 2004



WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600